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UNDER THE DIRECTION OF THE COMMITTEE OF GENERAL LITERATURE AND EDUCATION APPOINTED BY THE SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE.

COMMON HEMLOCK.
Conium Maculatum.

WATER-HEMLOCK.
Cicuta virosa.

WATER-DROPWORT.
Sium nodiflorum.

FINE LEAVED WATER-HEMLOCK.
Phellandrium aquaticum.

POISONOUS VEGETABLES.

WE have already, on former occasions, noticed incidentally the noxious properties of several vegetable productions; such as the Nightshade, Fungi, &c*. From the frequent accidents which occur, owing to the improper use of some species, and the prejudices which exist as to the virtues of others, a description of some of the most noted of these plants, together with an account of their good and bad properties, will, perhaps, not be unacceptable to many of our readers.

The order of plants to which those represented in the engraving belong, is named *Umbellata*, from the arrangement of the petals, or flower-leaves, which hang over something like the covering of an umbrella. Many of the genera of this order are of infinite service to man as food; others are useful in a medical point of view, or, at the least, harmless; while others, particularly three of the four represented in the engraving, are deadly poisons, or possess very noxious qualities. The resemblance between all the plants belonging to this order is so great, that any written description is useless in distinguishing one from another. Among those used as food, we find parsley, the parsnip, carrot, &c.; as medicine, or condiments, angelica, carraway, fennel, aniseed, coriander, lovage, &c.

With the exception of the parsnip, fennel, and a few others, in which the blossom is yellow, the whole of this tribe have a white flower, thus rendering the difficulty of distinction still greater.

The *Fine-leaved Water-Hemlock* is a biennial plant: the flowers are very small, and arranged in little tufts, about a quarter of an inch in diameter, each tuft attached to a stem, about an inch in length. From ten to twelve of these small stems spring from the end of the stalk, so as to form a cluster of flowers, from one to two inches in diameter: it grows in rivers, ditches, and pools, and flowers in June and July.

This plant has been said to be poisonous to horses, but later observations tend to show that the evil effects produced are not to be attributed to the plant, but to a small insect with which it is infested, the *Curculio paraplecticus*. The seeds, however, are certainly deleterious, even to man; but still it is not so decidedly poisonous as some we have to describe.

The *Water-Hemlock* is a perennial plant; it is about four feet in height, about twice that of the last described. The distinction between the two will be best understood by a reference to the engraving. It grows on the borders of pools and rivers, and flowers rather later than the fine-leaved species; namely, in July and August.

This species of hemlock may, from its fatal effects, be ranked among the decidedly poisonous vegetables. Its ill effects are more frequently experienced, from the taste of the leaves resembling that of parsley. The poisonous properties reside more particularly in the fresh root, and many fatal instances have been recorded of children incautiously partaking of it: it has also proved fatal to adults. When dry, the root appears to lose a great portion of its deleterious power. Many of the brute creation have suffered from eating this weed; but it is said, that although fatal to cows, sheep and goats may partake of it with impunity.

The *Common Hemlock* is biennial; it flowers in July, and is usually found near dung-hills and waste grounds. It is most readily distinguished from other umbelliferous plants by its spotted stalk. There is not the least reason to doubt, that the common hemlock is a deleterious poison, although, perhaps, not so virulent as the last named. Its power, however, seems to be rather uncertain; and we should be almost led to believe that, when the root is boiled, it is a nutritious vegetable.

Mr. Curtis, in speaking of this root, says, "Mr. T. Lane informs me, that he, with great caution, made some experiments; and, in a short time, found he could eat a considerable part of a root without any inconvenience. After this, he had some large roots boiled, and found them as agreeable eating at dinner with meat as carrots, which they in taste somewhat resembled; and, as far as his experience, joined to that of others, informed him, the roots might be cultivated in gardens, and either eaten raw, like celery, or boiled, as parsnips or carrots."

That the process of boiling would have a great effect upon this root there can be no doubt. Even the pleasant and nutritious potato is nauseous, and, to a certain extent, poisonous, in a raw state. In spite of this, however, the experiment would hardly be justifiable, or free from danger, when we remember the many well-authenticated accounts of its fatal effects. Several preparations of this plant have been used in medicine, on the Continent; but, in this country, it has been found very inefficacious.

The *Hemlock Water Drop-wort* very much resembles the preceding. It is perennial, and rises to the height of two or three feet. It grows on banks, and in ditches, and flowers in June and July: it is a decided poison.

Some years back, during the war with France, eleven French prisoners, stationed at Pembroke, had the liberty of walking in and about the town. Three of them being in the fields a little before noon, dug a large quantity of this plant, which they took to be wild celery, to eat with their bread and butter at dinner. After washing it, they all three ate, or rather tasted of the roots. As they were entering the town, without any previous notice of illness, one of them was seized with convulsions. His companions obtained medical assistance; but all endeavours to save him were useless, and he shortly died. His comrades, ignorant of the cause of his death, or of their own danger, gave a portion of the roots to the other eight prisoners, who all ate of them at dinner. The consequence was, that of the two who had first partaken, one died, and the remainder were with difficulty saved.

Numerous other instances are on record of the fatal effects of the Hemlock Water Drop-wort, particularly as far as regards children, and it may, with certainty, be said to be the most poisonous of the whole group.

* See *Saturday Magazine*, Vol. VI., p. 236; VII., pp. 4 and 189.

THE WINTER ROBIN.

A SUPPLIANT to your window comes,
Who trusts your faith, and fears no guile;
He claims admittance for your crumbs,
And reads his passport in your smile.

For cold and cheerless is the day,
And he has sought the hedges round;
No berry hangs upon the spray,
Nor worm, nor ant-egg, can be found.

Secure his suit will be preferred,
No fears his slender feet deter;
For sacred is the household bird
Which wears the scarlet stomacher.—C. SMITH.

WE part more easily with what we possess, than with our expectations of what we wish for. The reason of it is, that what we expect is always greater than what we enjoy.

ALL affectation is the vain and ridiculous attempt of poverty to appear rich.—LAVATER

MANUFACTURE OF SAL-AMMONIAC.

Even in the present abundance of animal food, the refuse is not wasted; and all that is thrown aside, as unpalatable or indigestible, is subsequently collected, for the purpose of obtaining a material, very extensively employed, and of considerable value in the arts, known familiarly under the name of *sal-ammoniac*. Perhaps, in the whole circle of the arts, there is scarcely any process more interesting, if all the attendant circumstances be considered, than the fabrication of this substance; and the interest principally arises from this peculiarity in the nature of the process, that, among the numerous products which are evolved in its different stages, there is scarcely one which is not sufficiently useful to prevent the necessity of its being thrown away.

Any one who is in the habit of walking much in the streets of London, will frequently see some half-clothed wretched individual, stooping down and holding open an apron, into which he throws, from time to time, pieces of broken bone and other offal, which he has disengaged from the interstices of the stones that form the carriage-pavement. The unsightly load thus obtained is conveyed to the sal-ammoniac manufactory; and when a sufficient mass of bones has been accumulated, from this and other sources, they are thrown into a caldron of water, and are boiled, for the purpose of clearing them from the grease with which they are enveloped; which grease, subsequently collected from the surface of the water on which it floats, is employed in the composition of soap.

The bones, thus cleaned, are thrown into large retorts, surrounded by burning fuel, and submitted to the process called *destructive distillation*, whereby, in consequence of the application of a sufficient degree of heat, the matter of the bone is resolved into its constituent elements, from which new compounds are formed. Of these, some pass off in the state of vapour or gas, while the fixed principles remain in the retort,

Among the more remarkable products which pass off, are carbonic acid gas, commonly known by the the name of *fixed air;* and various combinations of hydrogen and carbon, forming different kinds of inflammable air; together with water holding carbonate of ammonia (salt of hartshorn,) in solution, and a peculiar oil. Of these products, the fixed air and inflammable air are disregarded, and suffered to escape.

The oil is employed to feed lamps, placed in small chambers, the sides of which become incrusted with the smoke arising from the combustion; which smoke, being collected, becomes an article of sale, under the name of *lamp-black;* a substance of considerable importance as the basis of printing-ink, &c.

It would be tedious, and uninteresting to the general reader, to describe all the intermediate steps of the process, and is sufficient for the present purpose to state, that, towards the conclusion of it, two new compounds are formed, namely, muriate of ammonia and sulphate of soda; of which, the sulphate of soda is separated by the process of crystallization, and is sold to the druggists under the name of *Glauber's Salt;* and the muriate of ammonia, *(sal-ammoniac,)* the great object of the whole manufacture, is finally obtained, in a separate state, by the process called *sublimation.*

The form of the bones submitted to destructive distillation, in this process, is not altered; and the unvolatilized mass remaining in the retorts, consists of the earthy and saline matter of these bones, blackened by the carbon which is evolved from their animal matter. Exposure to an open fire drives off this carbon, and leaves the bones still unaltered in form, but nearly blanched; and these bones, subsequently reduced to powder, and mixed with a sufficient quantity of water, to give them the requisite degree of consistence, are formed into vessels which are employed in the process of refining gold and silver.

It was stated that, during the destructive distillation of bone, the carbonic acid and inflammable gases are suffered to escape; but of these, the latter might be employed in supplying light to gas-burners; and then, out of the numerous products of the complicated process which has been described, the carbonic acid would be the only substance not employed for some useful purpose.

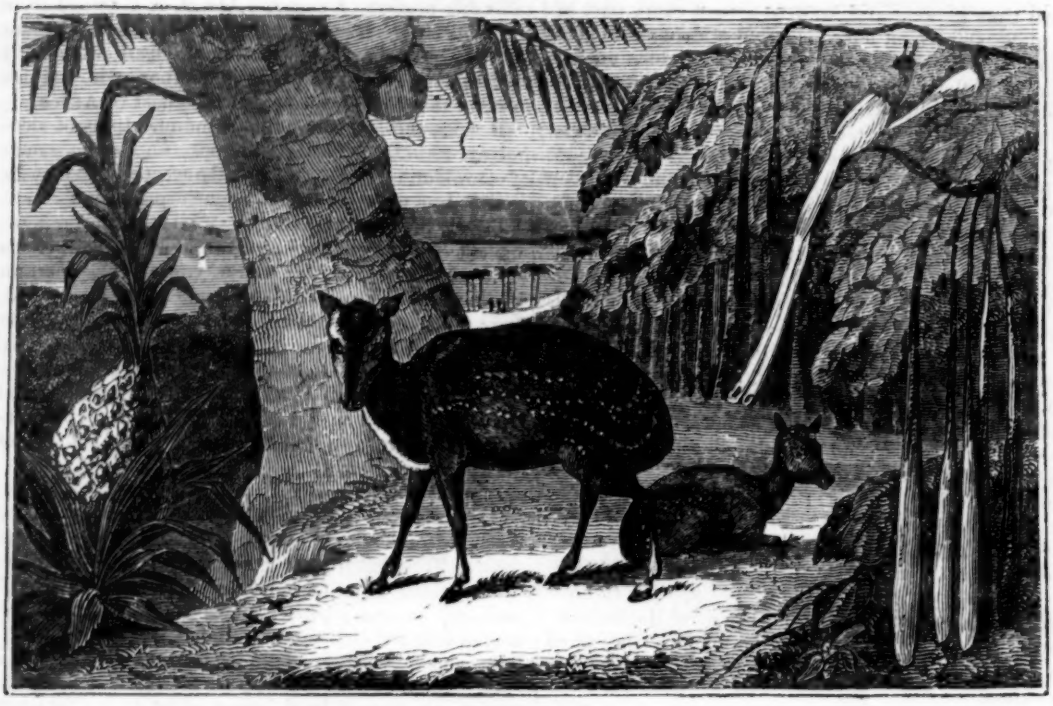
[Kidd's *Bridgewater Treatise.*]

A new Society, called "The French and Foreign Bible Society," was, two years ago, established. By its second Report, it appears that, during the last year, it distributed 1527 Bibles, and 5499 New Testaments. The report mentions a fact, which, if it shows the deplorable biblical ignorance which has hitherto prevailed (in France), shows likewise the zeal which is abroad to remove it:—viz., the governing committee of the Society has come to the resolution, that every pastor shall, in future, present at the altar a copy of the Holy Scriptures, to every young couple who may come to be married; so that no Protestant family may be without a household Bible, endeared to them by the most sacred and touching event of their lives, and being, as it were, a witness for good or for evil, either for or against them, throughout their after career.—*Blackwood's Magazine.*

Believe me, I speak it deliberately and with full conviction, I have enjoyed many of the comforts of life, none of which I wish to esteem lightly: often have I been charmed with the beauties of nature, and refreshed with her bountiful gifts. I have spent many an hour in sweet meditation, and in reading the most valuable productions of the wisest men. I have often been delighted with the conversation of ingenious, sensible, and exalted characters: my eyes have been powerfully attracted by the finest productions of human art, and my ears by enchanting melodies. I have found pleasure when calling into activity the powers of my own mind; when residing in my own native land, or travelling through foreign parts; when surrounded by large and splendid companies—still more, when moving in the small endearing circle of my own family: yet, to speak the truth before God, who is my Judge, I must confess I know not any joy that is so dear to me; that so fully satisfies the inmost desires of my mind; that so enlivens, refines, and elevates my whole nature, as that which I derive from religion, from faith in God; as one who not only is the parent of men, but has condescended, as a brother, to clothe himself with our nature. Nothing affords me greater delight than a solid hope that I partake of his favours, and rely on his never-failing support and protection. * * * * * He, who has been so often my hope, my refuge, my confidence, when I stood upon the brink of an abyss, where I could not move one step forward; He, who in answer to my prayer, has helped me when every prospect of help vanished; that God who has safely conducted me, not merely through flowery paths, but likewise across precipices and burning sands;—may this God be thy God, thy refuge, thy comfort, as he has been mine!—Lavater.

We indeed may not be called upon to make any very difficult sacrifices on account of our religion, or to undergo any extremity of labour, or to incur any signal dangers in that behalf. Yet the faithful Christian will always find occasions in which he may testify his fidelity to Christ, by labouring to instruct the ignorant, and by administering assistance and comfort to his afflicted brethren. And he who engages in these works and labours of love, provided he engage in them with Christian prudence as well as Christian benevolence, is manifesting thereby a laudable attachment to Christian faith.—Bishop Mant.

CEYLON DEER.



WHILE on a visit to the Coorg Rajah we strolled into a sort of park, in which he had a great number of curious animals, and among these were two small deer from Ceylon, the most beautiful little creatures I had ever seen. They were about the size of a fox, of a deep reddish brown, the body covered with bright spots, which gave them quite a refined beauty, as if they were creatures fit only to be the pets of royalty. This species of deer is the smallest of the cervine tribe, and has no horns, in some respects corresponding with the *Cervus Guineensis* of Linnæus. They abound in Ceylon, where they are taken in traps, and disposed of on the coast for a mere trifle. It is the most exquisitely formed creature that can be imagined, its small taper legs being scarcely larger than a lady's finger. Its flesh is esteemed a particular delicacy, and remarkably wholesome.

These tiny animals are caught in great numbers, in the interior of Ceylon, and almost daily taken to Columbo, and other towns, where they are sold for about two shillings. On the peninsula, they are esteemed a rarity, and are frequently purchased rather for the exquisite symmetry of their forms, than for the delicacy of their flesh, which, however, is far superior to that of any other deer. The Rajah had several, and highly valued them, having a great fancy for animals of all kinds. Those we saw were quite tame, allowing us to approach within a few yards of them, without appearing in the slightest degree disturbed by our proximity. They are called the moose-deer by the Cingalese, though, further than is usual with creatures of the same race, they bear no resemblance to that animal, of which they may be mutually said to constitute the antipodes, the one being the largest, and the other the smallest, of the deer tribe.

[Rev. HOBART CAUNTER, in the *Oriental Annual.*]

ALWAYS look at those whom you are talking *to*, never at those whom you are talking *of*.

I RESOLVE never to speak of a man s virtues before his face nor of his faults behind his back.—BEVERIDGE.

I HAVE frequently observed two ants meeting on their path across a gravel-walk, one going from, and the other returning to the nest. They will stop, touch each other's antennæ, and appear to hold a conversation; and I could almost fancy that one was communicating to the other the best place for foraging; which Dr. Franklin thought they had the power of doing, from the following circumstance:—

Upon discovering a number of ants, regaling themselves with some treacle, in one of his cupboards, he put them to the rout, and then suspended the pot of treacle by a string, from the ceiling. He imagined that he had put the whole army to flight; but was surprised to see a single ant quit the pot, climb up the string, cross the ceiling, and regain its nest. In less than half an hour, several of its companions sallied forth, traversed the ceiling, and reached the depository, which they constantly revisited until the treacle was consumed.—JESSE.

AN agreeable writer makes the following contrast between the dispositions of dogs and cats. He says, "I do not love a cat: his disposition is mean and suspicious. A friendship of years is cancelled in a moment by an accidental tread on his tail or foot. He instantly spits, raises his back, twirls his tail of malignity, and shuns you, turning round, as he goes off, a staring vindictive face, full of horrid oaths and unforgiveness; seeming to say, "Perdition catch you! I hate you for ever." But the dog is my delight. Tread on *his* tail or foot, he expresses for a moment the uneasiness of his feelings, but in an instant more, the complaint is ended. He runs around you, jumps up against you, seems to declare his sorrow for complaining, as he was not intentionally hurt; nay, to make himself the aggressor, he begs, by whinings and lickings, that his master will think of it no more."

POUR in knowledge gently. Plato observed that the minds of children were like bottles with very narrow mouths: if you attempted to fill them too rapidly, much knowledge was wasted, and little received; whereas, with a small stream, they were easily filled. Those who would make young children prodigies, act as wisely as if they would pour a pail of water into a pint measure.—*Educational Magazine.*

MEN who possess all the advantages in life, are in a state in which there are many accidents to disorder and discompose but few to please them.—SWIFT.

SPIRITUOUS LIQUORS.

From time immemorial, and in almost every part of the globe, some men have exhibited a strong and pernicious appetite for substances which produce an excitement of the spirits. This state being the effect of a foreign or adventitious cause, and not the natural result of the well-being of the system, is only transient, and is very often followed by the opposite state of depression or dulness. To remove this unpleasant secondary state, or to heighten the fascinating and seductive gratification of the first, or excited state, there is too often temptation to repeat the exciting cause. In proportion to the extent to which this is carried, the spirits and intelligence become more or less disturbed. The senses are perverted, and reason, for a time, ceases to have the control of the thoughts and actions. This dangerous state is called intoxication. To give way to the temptation to produce it, has ever been regarded as one of the most loathsome and degrading vices—the associate and promoter of almost every other. In the Old Testament, those addicted to it are sometimes called sons of Belial, and represented as the perpetrators of the blackest and basest crimes. Even amongst the heathen nations of antiquity, the vice of intoxication was strongly reprobated. Wine, or the fermented juice of the grape, appears to have been the first, as well as the most general means, employed in producing intoxication; hence the word vine is sometimes used to denote the state of intoxication.

It does not appear that the ancients were acquainted with stronger liquor than wine, which, when perfectly made from the unmixed juice of the grape, is certainly of great intoxicating power.

It was not until the study of alchemy, that we became acquainted with the fluid called alcohol; for, in those days, there were no chemists. The alchemists devoted their studies to the accomplishment of two objects:—one, to make gold, or convert base metals into it; and the other, to discover what was called the elixir of life, which was to destroy the influence of age and of death, and to preserve those who should take it in perpetual youth and vigour. The desire to achieve these two objects led to the making of experiments; in the course of which, it is said, that Paracelsus, one of the most distinguished alchemists, discovered alcohol, or spirits of wine, and observed its exciting properties, which were considered as an actual acquisition of permanent strength and vigour. He eagerly used it himself, and led others to follow his pernicious example. After having boasted that he should enjoy extraordinary length of life, a premature death terminated a course of violence and intoxication. Alcohol is not formed by distillation; it exists in simple fermented liquors, from which it is only separated by the still.

There are various kinds of distilled spirits. Brandy is, or should be, distilled from wine, or the fermented juice of the grape. Whiskey is obtained from fermented wort, brewed from barley or other grain, after it has been malted. Hollands and gin consist of alcohol, or spirits in a diluted state, flavoured with the berry of the juniper, which possesses certain medicinal properties, which may sometimes render these spirits useful. Yet this is more often urged as a merely frivolous pretext, than as a valid plea for their employment. It is vulgarly believed, that ingredients of an injurious tendency are substituted for the juniper-berry in the manufacture of gin, and the impaired health produced by it is ascribed to them, rather than to the true cause, namely, the essential properties of the spirit. Rum is distilled from the residue of the juice of the sugar-cane, which is suffered to ferment after the separation of the crystallizable portion of sugar. Arrack is obtained from fermented rice: it is an exceedingly strong and ardent spirit, which is manufactured in the East, where it is no less destructive than rum is, to those who indulge in it, in the West Indies or on the coast of Africa.

Besides these spirits, various modifications of alcohol are found in the liquor-shops, under the names of compounds and cordials. However they may be modified as to taste, by the sugar, spices, and essential oils which they contain, they all agree in possessing the deadly properties of the spirit which forms their basis. Some of these compounds contain another poisonous principle, namely, prussic acid, derived from bitter almonds, and other kernels, with which they are flavoured. Though instances have occurred of serious consequences having been produced by such cordials, the quantity of prussic-acid employed is very seldom sufficiently great for its pernicious tendency to deserve comparison with that of the spirit.

It is worthy of remark, how the pernicious properties of ardent spirits have been attempted to be disguised under the names which have been given to them. Thus brandy, over a large portion of Europe, is designated by a name signifying "water of life," probably in consequence of some traditional connexion with the alchemistic notions of its first preparer, Paracelsus. Gin is called "cream of the valley," a name which would answer very well, if the words "of the shadow of death" were added to it. Whiskey is dignified with the name of "mountain dew," which is often brought, in violation of the law, from barren mountains, where there is neither dew nor verdure; and rum, which has been the means of all but exterminating the noblest of the uncivilized races of mankind, is introduced to the ill-fated American Indian, as "the milk of his father, the President."

It is needless to dwell on these liquors individually, as they offer only a choice of evils. They are, nevertheless, sometimes useful as medicines; as, when life appears sinking, or when the circulation becomes too languid; but, because in some cases of sickness it may be expedient to administer spirits, it is very erroneous to think that they may be taken with impunity in a state of health.

The effects produced by the immoderate use of ardent spirits, are of two kinds:—first, the transient, produced by large and overpowering quantities at one time; secondly, the more permanent, produced by the continued and habitual use of spirits. This last is the more decidedly likely to prove fatal. The first may cause sudden death; but generally soon pass away, and leave no visible ill effect; whilst the second almost inevitably leads to death, by the painful path of sickness.

A large quantity of spirits, taken at one time, produces sickness with some persons; and in this case the evil is soonest got rid off. Some persons become noisy, as we find by the tumultuous uproar so often heard issuing from those haunts in which the vice of drunkenness is usually practised: others become furious, and in that state commit the most odious crimes: others become torpid, or, as it is termed, dead drunk: these, if they escape apoplexy, probably lay the foundation of disease, which ends only with their lives. It is true, that some are so constituted as to appear to be able to take large quantities of ardent spirits, without producing manifest intoxication, or inconvenience; yet even these must ultimately suffer.

The fatal influence of intemperance in drink, is occasionally seen a little beyond the middle period of

life, at which time, persons are not very unfrequently subject to what is called climacteric decline. Some are favoured so far as to recover from this attack; but, to the spirit-drinker, it almost always proves fatal. Premature old age is another result of spirit-drinking; and this habit unfits its victims to bear the wounds, fractures, and accidents of various kinds, to which all are liable. It is also worthy of remark, that the spirit-drinker is peculiarly susceptible of disease of all kinds, and, consequently, is likely to fall the first victim to fevers, or other epidemic distempers.

It is generally supposed that spirits promote the warmth of the body; on which account they are frequently taken by persons who have no inclination to intemperance, when they are peculiarly exposed to cold. This is a very fallacious practice. A transient glow may, indeed, be produced by the quickened circulation which for a short time succeeds the swallowing of the dram; but this afterwards becomes proportionably more languid; in consequence of which, the surface, and more especially the extremities, become pale and cold, whilst the internal parts are both stimulated by the spirit, and loaded with the blood which has left the surface of the body. The object of maintaining and equalizing the warmth of the body is completely lost; whilst the internal organs are exposed to the danger of inflammation.

The pernicious influence of ardent spirits is no less strikingly exerted on the intellectual and moral feelings than on the bodily health. It has long been known, that, under the influence of intoxication, secrets are betrayed; yet, although the impolitic or ill-timed divulging of a truth, may have its inconveniences, this is, perhaps, the very least of the evils which attend this perversion of intelligence. The veracity of drunkenness is as untrustworthy as impolitic; and instances are by no means rare, of persons, in a state of intoxication, accusing themselves, as well as others, of crimes of which they are altogether innocent.

Although the imagination may sometimes seem to be stimulated to extraordinary power and activity, under the temporary excitement of intoxicating liquors, imagination as well as judgment, and every other faculty of the mind, in time, becomes irreparably injured or destroyed under the influence of strong liquors. Many individuals, whose cultivated talents had gained them well deserved reputation, and might have insured them an ample income, have irretrievably ruined their abilities, lost their acquirements, and sunk into beggary, the blots, instead of the ornaments, of society. It is by no means uncommon for the injury of the intellectual faculties, induced by frequent intoxication or habitual tippling, to amount to actual insanity; sometimes in the form of mania, or raving madness; sometimes in that of the most wretched and desponding melancholy, in which self-destruction is sought for with persevering obstinacy; sometimes resembling the vacant stupidity of a born idiot.

The moral feelings are not less impaired than the intellectual faculties. A reckless disregard of right and wrong is progressively induced, by which a path is opened to the commission of every species of crime. Veracity or honesty of speech is violated for the purpose of either concealing the intemperance itself, or the faults committed under its influence. Honesty, with respect to the property of others, is disregarded, for the purpose of gratifying the appetite for liquor, or to meet the expenses which the extravagance of drunken folly may have occasioned, or to repair the mischief which wanton destruction may have committed, or to provide for pinching wants, which become progressively more urgent, as the loss of property and employment cut off the honest and lawful means of satisfying them.

The temper, which may have originally been mild and placid, becomes fretful, irritable, and disturbed by uncontrolable passion. Parents have been known to cause the death of their children; children have slain their parents; and the nearest friends have been sacrificed. Even when the impulses of passion do not urge the drunkard to acts of extreme violence, the ties of relationship, and the general claims of humanity are dissolved. Parents witness with seeming indifference, the distress and misery in which they have involved their offspring; and, for the purchase of a little gin, have been known to devote them, in helpless infancy, to the loathsome slavery of a chimney-sweeper. Volumes might be filled with the details of murders, incendiaries, and riots, perpetrated by those who have given themselves up to the demoralizing influence of intoxicating liquors.

It is needless to detail the catalogue of crimes of which drunkenness has been the parent or the promoter. It is enough to allude to the many evils which attend the various forms of gambling; and the numerous snares by which hitherto untainted and unsuspecting youth is beguiled into irretrievable ruin, under the spell of inebriating liquor.

You will, perhaps, be inclined to think that an undue stress is laid upon extreme cases,—that the most is made of the evils and dangers which may proceed from giving way to a taste for strong drink, and that you see many indulge in it who have not brought themselves to the brink of ruin, and blasted their characters in the way described. But, in endeavouring to point to the limits to which a course of intemperance is likely to lead, let it be asked whether any one who enters into such a course can ensure himself against the dreadful chance of reaching those limits? and what there was to distinguish the most profligate and abandoned alluded to, when they began to gratify themselves with the fascinating pleasures of intoxicating liquors, from any of those whom you may see around you, and fancy to be innocently indulging themselves in the same fatal pleasure?

The majority, who may escape the worst extremes, have, nevertheless, to rue many evils and sufferings, which cannot fail to befal them in their deviation from virtue and temperance. Long before they become notorious as decided drunkards, regular and industrious habits are broken in upon, and lost, if they had ever been formed. Earnings are diminished; whilst the money expended is more considerable, as well as injuriously, or less usefully applied. The publican and the pawnbroker swallow up the wages of the workman; whilst filthiness and idleness introduced into his family, cannot fail to draw down upon them the contempt or the reproach of all around them. It is in vain that their relatives or friends take compassion on their miserable fate. Every effort to relieve them is sure to be abortive; and everything which is bestowed upon them, seems to share in the curse which they have incurred. The melancholy picture which they present cannot be duly appreciated, unless it be contrasted with the happy results which a steady course of industry, and prudent economy,—the offspring and associates of temperance, cannot fail to procure. Your own observation and reflection will enable you to draw the contrast; and when you have conscientiously done so, you will not only be struck with the beauty of the one picture, and the deformity of the other, but you will make the discovery that a large portion of the misery and distress at present dependent on poverty, and the in-

sufficiency and want of success of nearly all the measures, public and private, employed to relieve them, are in a great degree to be attributed, either directly or indirectly, to intemperance.

[Abridged from HODGKIN *on the Means of Preserving Health.*]

THE PALACE OF DEATH.
A FABLE.

I SAW a PALACE, wide and fair,
And multitudes assembled there:
'Twas open all the day, but shone
More gaily as the night came on.
A massive Lamp, of curious mould,
Displayed the front of white and gold,
Whereon, with face of dazzling light,
A Clock declared the time of night.
The doors unfolding, I begin
To note the busy scene within.
The spacious Presence-room was graced
With columns in Corinthian taste
Bright rays, from many lustres, fall
Full on the veined and marbled wall,
Which might with Scagliola vie,
Or hard and polished Porphyry,
Whilst thickly-corniced ceilings lent
Their aid of grace and ornament.
Yet, contrast strange to gaudy pride!
Huge, uncouth butts, ranged side by side,
Inscribed with some delusive name,
A desolating use proclaim!
But, stranger still, the crowds that prest,
Each like a free and welcome guest,
To seize the cup, and drink it dry,
Which painted menials quickly ply.
How shall I draw the motley band?
The sunken cheek, the palsied hand;
The tattered coat, the squalid face;
The draggled train, the skulking pace:—
"How ill," said I, "such sights agree
With glare, and cost, and finery!
And yet, for all the grand display,
This miserable group must pay:"
And *more* than pay; for he who reign'd
In this proud palace, basely drain'd
Their hard-got means; then oft withdrew
Their reason and existence too!
"And who is he, that horrid king,
That gloats on human suffering;
Unfolds his wide, attractive door,
And seeks his victims from the poor;
Wears, for their hurt, a winning face;
Then flourishes in their disgrace?"
Sorrowing I spoke:—the crowds were gone;
When in a deep and rattling tone,
"Lo! it is I! 'tis DEATH!" replied
A grisly Spectre at my side:
"Intemp'rate creatures hither come,
And leave the pure delights of home
Leave faithful wives disquieted,
And children pinch'd for want of bread,
To lay their tribute at my shrine,
And make the week's resources mine;
Till, like the sons of heathen sires,
Who pass'd to Moloch through the fires,
Rack'd with an inward, craving strife,
They yield their senses and their life!
War, earthquake, famine, fire, the sea,
Are several paths that lead to me;
But, lord of *yonder poisonous stream*,
I reign triumphantly supreme:
To loss of soul and frame's decay,
THIS is the broad, the beaten way!"

M.

HE who ventures into the river where the crocodile is basking, becomes himself the cause of his own destruction; and the serpent cannot be said to have occasioned the death of the man who has extracted the poison from his tooth, in order to try its effects.—*From the Arabic.*

AVOID luxury, but condemn not temperate or moderate mirth and cheerfulness.—BUCER.

ELECTRICITY—GALVANISM—MAGNETISM.

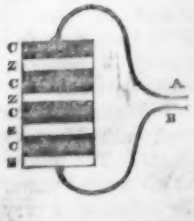
THE powers of Electricity, Galvanism, and Magnetism, are so curiously and intimately connected with each other, that it is almost impossible to understand one without some knowledge of the other two; and the more we inquire into the subject, the more probable does it appear that the three are but modifications of the same mysterious agent.

The most simple means of exciting the electric power, is by rubbing smartly a stick of sealing-wax, or a rod of glass, on a piece of silk or woollen cloth. When this friction has been continued for a few seconds, it will be found that the sealing-wax or glass has acquired the power of alternately attracting and repelling small substances, such as fragments of paper, gold-leaf, and other light objects; and if the experiment is attempted on a larger scale, by substituting a large cylinder of glass, mounted in a frame, and turned rapidly round by means of a handle, while a pad of silk presses tightly on its surface, a larger quantity of the electric principle is elicited; and this principle, be it what it may, can be collected and condensed, so as to exhibit its powers in a much more effective manner. In this case, if the hand, or any metallic substance, is brought near to the receptacle in which it has been collected, instead of showing its presence simply by attracting small substances, as in the first experiment, it will appear visible to the eye, producing a brilliant spark, accompanied by a crackling noise, as it passes from the receptacle to the hand or metal, and, at the same time, communicating a very palpable shock. To understand this better, it will be necessary to state, that all substances have been divided into *conductors* and *non-conductors* of electricity: thus, for instance, glass and sealing-wax are non-conductors, and metals, conductors. The usual method of accumulating the electric principle is by means of a conductor, formed of a cylinder of hollow metal, supported by a glass pillar: the conductor is then said to be insulated; for the glass being a non-conductor, will not allow the electric power to escape. At one end of the conductor is a piece of metal with several points, like a fork: this end is placed next to the electrical machine, and attracts the electric principle as fast as it is generated.

It was long ago shown by Dr. Franklin, that lightning is identical with electricity, and that the flash produced is but the visible passage of this principle through the air, and identical, although on a grander scale, with the spark noticed in the last experiment, in which the crackling sound is the humble representative of the terrific thunder-clap.

It may be worth while noticing here, that the injury done to a building, or other object, in a thunderstorm, is occasioned by the passage of the electric principle, or lightning, and not, as is commonly believed, by a supposed solid substance called a thunderbolt, which exists only in the fancy of the uninformed.

Towards the close of the last century, another form of the *electric* principle was observed, which, from the name of the inventor, Galvani, has been called Galvanism. It was discovered, that if any two metals, on which acids would act with different degrees of violence,—such as silver and zinc, copper and zinc, &c.,—were placed alternately, with a piece of woollen cloth, wetted in diluted sulphuric acid, between each, and a copper wire (A), soldered to the upper piece of copper, was taken between the finger and



thumb of the left hand, the other hand, or any part of the body, being brought into contact with the wire B, the galvanic power which has been excited, will evince itself by producing what is called a shock, attended with pain and a peculiar sensation.

If the galvanic apparatus is made on a larger scale, and the ends of the wires are brought nearly in contact, a continued stream of sparks is produced, so powerful when proceeding from a very large apparatus, as to be capable of melting the most stubborn metals. In the engraving, the alternate letters, Z and C, point out the zinc and copper plates, and the dark space between represents the wetted wollen cloth.

The properties of magnetism we have already described in the *Saturday Magazine*, when noticing the Mariner's Compass *.

Having thus laid before our readers a short account of the distinguishing properties of these three great agents, namely, Electricity, Galvanism, and Magnetism, we shall endeavour to point out in what manner they agree with each other, in their effects upon matter; and, to render this more clear, describe several very ingenious and beautifully constructed arrangements of apparatus, which illustrate these effects in a most surprising manner, and which we have copied, with permission, from the machines themselves, in the Adelaide Gallery, at the Lowther Arcade, London.

Electricity has been considered as a more diffused, and rather a less concentrated, state of the threefold principle we are now speaking of, than either Galvanism or Magnetism; and, consequently, we are led to expect less powerful results from any attempts we may make to bring it, as it were, to a focus, so as to bear upon any particular point, although, as we have already said, when it appears in the form of lightning, prepared in the great laboratory of nature, its effects are terrific. There is a great resemblance between the two poles of the magnet and the two kinds of electricity, namely, the *vitreous*, produced by friction on glass, and the *resinous*, from sealing-wax, or amber; any light body, as, for instance, a delicate pith-ball, nicely suspended, will, according to the state of electricity in which it is, be attracted by the one and repelled by the other. Its resemblance to *Magnetism* was also shown by Dr. Franklin, who passed a violent shock through a sewing-needle, by which the needle became sufficiently impregnated with the magnetic power to range itself north and south, when allowed to traverse by being nicely balanced on a pivot. An electric shock will also at times change the poles of a needle; and this has not unfrequently taken place at sea, when, after a thunder-storm, the north end of the needle has pointed to the south, thus placing the safety of the vessel in jeopardy until by observing the heavenly bodies the error has been discovered.

Although there is little doubt of the identity of Electricity and *Galvanism*, from the effects produced by both being of the same description, differing only in intensity; yet, as the galvanic power appears to be excited by chemical agency, that is, by the action of acids on metals, and the electric power by friction, or by induction from the atmosphere, there is much variety of opinion as to the points in which they agree or differ.

We thus find that the electric principle identifies itself with Magnetism and Galvanism, at least in its effects. The following engraving shows the mode in which a most powerful *magnetic* effect is produced by the action of a very moderate galvanic battery.

The apparatus consists of a bar of soft iron (A), bent into the form of a horse-shoe, weighing about thirty-four pounds. Several pieces of copper wire, each measuring ninety feet in length, are wound round the iron, the wire being covered with silk, to prevent one piece coming in contact with another. The extremities of these wires are soldered to two thick pieces of copper wire, (B and C), so that one end of each wire is at B and the other end at C. This arrangement affords the means of transmitting an electric *(galvanic)* current through the whole series of wires at the same time.

TEMPORARY ELECTRO-MAGNET.

The battery (E) employed to excite the electro-magnet is very small, composed of a double concentric cylinder of copper, and a moveable cylinder of zinc between the two copper cylinders. Diluted acid being poured into the battery to excite its action, the two extremities of the combined copper wires are connected with the battery, by placing one end of the thick wire in each of the small cups which form part of the apparatus. As soon as this is done, the soft iron becomes a very powerful temporary magnet, capable of sustaining between four and five hundred pounds weight; but immediately the connexion is broken, the magnetism almost entirely ceases.

There are several other machines illustrating, in a most beautiful manner, this curious subject, which we shall figure and describe in a future number of the *Saturday Magazine*.

THE following account of a particular process for the purpose of obtaining salt, well illustrates the ingenuity of the human mind in taking advantage of natural hints. In Guiana there is a very common species of palm, the flowers of which are enveloped by a sheath, capable of holding many pints of water; and the density and general nature of the sheath is such, that the water contained in it may be heated over a fire without destroying its substance; and the Caraibs actually employ these sheaths, in evaporating the sea-water, for the purpose of obtaining a quick supply of salt.—*Diction. des Sciences Nat.*

* See *Saturday Magazine*, Vol. III., p. 115.

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